COVID-19: THE GREAT RESET KLAUS SCHWAB THIERRY MALLERET FORUM PUBLISHING 2020 About Covid-19: The Great Reset Since it made its entry on the world stage, COVID-19 has dramatically torn up the existing script of how to govern countries, live with others and take part in the global economy. Written by World Economic Forum Founder Klaus Schwab and Monthly Barometer author Thierry Malleret, COVID-19: The Great Reset considers its far-reaching and dramatic implications on tomorrow’s world. The book’s main objective is to help understand what’s coming in a multitude of domains. Published in July 2020, in the midst of the crisis and when further waves of infection may still arise, it is a hybrid between a contemporary essay and an academic snapshot of a crucial moment in history. It includes theory and practical examples but is chiefly explanatory, containing many conjectures and ideas about what the post-pandemic world might, and perhaps should, look like. The book has three main chapters, offering a panoramic overview of the future landscape. The first assesses what the impact of the pandemic will be on five key macro categories: the economic, societal, geopolitical, environmental and technological factors. The second considers the effects in micro terms, on specific industries and companies. The third hypothesizes about the nature of the possible consequences at the individual level. In early July 2020, we are at a crossroads, the authors of COVID-19: The Great Reset argue. One path will take us to a better world: more inclusive, more equitable and more respectful of Mother Nature. The other will take us to a world that resembles the one we just left behind – but worse and constantly dogged by nasty surprises. We must therefore get it right. The looming challenges could be more consequential than we have until now chosen to imagine, but our capacity to reset could also be greater than we had previously dared to hope. Professor Klaus Schwab (1938, Ravensburg, Germany) is the Founder and Executive Chairman of the World Economic Forum. In 1971, he published Modern Enterprise Management in Mechanical Engineering. He argues in that book that a company must serve not only shareholders but all stakeholders to achieve long-term growth and prosperity. To promote the stakeholder concept, he founded the World Economic Forum the same year. Professor Schwab holds doctorates in Economics (University of Fribourg) and in Engineering (Swiss Federal Institute of Technology) and obtained a master’s degree in Public Administration (MPA) from the Kennedy School of Government at Harvard University. In 1972, in addition to his leadership role at the Forum, he became a professor at the University of Geneva. He has since received numerous international and national honours, including 17 honorary doctorates. His latest books are The Fourth Industrial Revolution (2016), a worldwide bestseller translated into 30 languages, and Shaping the Future of the Fourth Industrial Revolution (2018). Thierry Malleret (1961, Paris, France) is the Managing Partner of the Monthly Barometer, a succinct predictive analysis provided to private investors, global CEOs and opinion- and decision-makers. His professional experience includes founding the Global Risk Network at the World Economic Forum and heading its Programme team. Malleret was educated at the Sorbonne and the Ecole des Hautes Etudes en Sciences Sociales, Paris, and at St Antony's College, Oxford. He holds master’s degrees in Economics and History, and a PhD in Economics. His career spans investment banking, think tanks, academia and government (with a three-year spell in the prime minister's office in Paris). He has written several business and academic books and has published four novels. He lives in Chamonix, France, with his wife Mary Anne. CONTENTS INTRODUCTION 1. MACRO RESET 1.1. Conceptual framework – Three defining characteristics of today’s world 1.1.1. Interdependence 1.1.2. Velocity 1.1.3. Complexity 1.2. Economic reset 1.2.1. The economics of COVID-19 1.2.1.1. Uncertainty 1.2.1.2. The economic fallacy of sacrificing a few lives to save growth 1.2.2. Growth and employment 1.2.2.1. Economic growth 1.2.2.2. Employment 1.2.2.3. What future growth could look like 1.2.3. Fiscal and monetary policies 1.2.3.1. Deflation or inflation? 1.2.3.2. The fate of the US dollar 1.3. Societal reset 1.3.1. Inequalities 1.3.2. Social unrest 1.3.3. The return of “big” government 1.3.4. The social contract 1.4. Geopolitical reset 1.4.1. Globalization and nationalism 1.4.2. Global governance 1.4.3. The growing rivalry between China and the US 1.4.4. Fragile and failing states 1.5. Environmental reset 1.5.1. Coronavirus and the environment 1.5.1.1. Nature and zoonotic diseases 1.5.1.2. Air pollution and pandemic risk 1.5.1.3. Lockdown and carbon emissions 1.5.2. Impact of the pandemic on climate change and other environmental policies 1.6. Technological reset 1.6.1. Accelerating the digital transformation 1.6.1.1. The consumer 1.6.1.2. The regulator 1.6.1.3. The firm 1.6.2. Contact tracing, contact tracking and surveillance 1.6.3. The risk of dystopia 2. MICRO RESET (INDUSTRY AND BUSINESS) 2.1. Micro trends 2.1.1. Acceleration of digitization 2.1.2. Resilient supply chains 2.1.3. Governments and business 2.1.4. Stakeholder capitalism and ESG 2.2. Industry reset 2.2.1. Social interaction and de-densification 2.2.2. Behavioural changes – permanent vs transient 2.2.3. Resilience 3. INDIVIDUAL RESET 3.1. Redefining our humanness 3.1.1. The better angels in our nature… or not 3.1.2. Moral choices 3.2. Mental health and well-being 3.3. Changing priorities 3.3.1. Creativity 3.3.2. Time 3.3.3. Consumption 3.3.4. Nature and well-being CONCLUSION ACKNOWLEDGEMENTS ENDNOTES INTRODUCTION The worldwide crisis triggered by the coronavirus pandemic has no parallel in modern history. We cannot be accused of hyperbole when we say it is plunging our world in its entirety and each of us individually into the most challenging times we’ve faced in generations. It is our defining moment – we will be dealing with its fallout for years, and many things will change forever. It is bringing economic disruption of monumental proportions, creating a dangerous and volatile period on multiple fronts – politically, socially, geopolitically – raising deep concerns about the environment and also extending the reach (pernicious or otherwise) of technology into our lives. No industry or business will be spared from the impact of these changes. Millions of companies risk disappearing and many industries face an uncertain future; a few will thrive. On an individual basis, for many, life as they’ve always known it is unravelling at alarming speed. But deep, existential crises also favour introspection and can harbour the potential for transformation. The fault lines of the world – most notably social divides, lack of fairness, absence of cooperation, failure of global governance and leadership – now lie exposed as never before, and people feel the time for reinvention has come. A new world will emerge, the contours of which are for us to both imagine and to draw. At the time of writing (June 2020), the pandemic continues to worsen globally. Many of us are pondering when things will return to normal. The short response is: never. Nothing will ever return to the “broken” sense of normalcy that prevailed prior to the crisis because the coronavirus pandemic marks a fundamental inflection point in our global trajectory. Some analysts call it a major bifurcation, others refer to a deep crisis of “biblical” proportions, but the essence remains the same: the world as we knew it in the early months of 2020 is no more, dissolved in the context of the pandemic. Radical changes of such consequence are coming that some pundits have referred to a “before coronavirus” (BC) and “after coronavirus” (AC) era. We will continue to be surprised by both the rapidity and unexpected nature of these changes – as they conflate with each other, they will provoke second-, third-, fourth- and more-order consequences, cascading effects and unforeseen outcomes. In so doing, they will shape a “new normal” radically different from the one we will be progressively leaving behind. Many of our beliefs and assumptions about what the world could or should look like will be shattered in the process. However, broad and radical pronouncements (like “everything will change”) and an all-or-nothing, black-and-white analysis should be deployed with great care. Of course, reality will be much more nuanced. By itself, the pandemic may not completely transform the world, but it is likely to accelerate many of the changes that were already taking place before it erupted, which will in turn set in motion other changes. The only certainty: the changes won’t be linear and sharp discontinuities will prevail. COVID19: The Great Reset is an attempt to identify and shed light on the changes ahead, and to make a modest contribution in terms of delineating what their more desirable and sustainable form might resemble. Let’s begin by putting things into perspective: human beings have been around for about 200,000 years, the oldest bacteria for billions of years and viruses for at least 300 million years. This means that, most likely, pandemics have always existed and been an integral part of human history since people started travelling around; over the past 2000 years they have been the rule, not the exception. Because of their inherently disruptive nature, epidemics throughout history have proven to be a force for lasting and often radical change: sparking riots, causing population clashes and military defeats, but also triggering innovations, redrawing national boundaries and often paving the way for revolutions. Outbreaks forced empires to change course – like the Byzantine Empire when struck by the Plague of Justinian in 541-542 – and some even to disappear altogether – when Aztec and Inca emperors died with most of their subjects from European germs. Also, authoritative measures to attempt to contain them have always been part of the policy arsenal. Thus, there is nothing new about the confinement and lockdowns imposed upon much of the world to manage COVID-19. They have been common practice for centuries. The earliest forms of confinement came with the quarantines instituted in an effort to contain the Black Death that between 1347 and 1351 killed about a third of all Europeans. Coming from the word quaranta (which means “forty” in Italian), the idea of confining people for 40 days originated without the authorities really understanding what they wanted to contain, but the measures were one of the first forms of “institutionalized public health” that helped legitimatize the “accretion of power” by the modern state. [1] The period of 40 days has no medical foundation; it was chosen for symbolic and religious reasons: both the Old and New Testaments often refer to the number 40 in the context of purification – in particular the 40 days of Lent and the 40 days of flood in Genesis. The spread of infectious diseases has a unique ability to fuel fear, anxiety and mass hysteria. In so doing, as we have seen, it also challenges our social cohesion and collective capacity to manage a crisis. Epidemics are by nature divisive and traumatizing. What we are fighting against is invisible; our family, friends and neighbours may all become sources of infection; those everyday rituals that we cherish, like meeting a friend in a public place, may become a vehicle for transmission; and the authorities that try to keep us safe by enforcing confinement measures are often perceived as agents of oppression. Throughout history, the important and recurring pattern has been to search for scapegoats and place the blame firmly on the outsider. In medieval Europe, the Jews were almost always among the victims of the most notorious pogroms provoked by the plague. One tragic example illustrates this point: in 1349, two years after the Black Death had started to rove across the continent, in Strasbourg on Valentine’s day, Jews, who’d been accused of spreading the plague by polluting the wells of the city, were asked to convert. About 1,000 refused and were burned alive. During that same year, Jewish communities in other European cities were wiped out, forcing them to massively migrate to the eastern part of Europe (in Poland and Russia), permanently altering the demography of the continent in the process. What is true for European antiSemitism also applies to the rise of the absolutist state, the gradual retreat of the church and many other historical events that can be attributed in no small measure to pandemics. The changes were so diverse and widespread that it led to “the end of an age of submission”, bringing feudalism and serfdom to an end and ushering in the era of Enlightenment. Put simply: “The Black Death may have been the unrecognized beginning of modern man.” [2] If such profound social, political and economic changes could be provoked by the plague in the medieval world, could the COVID-19 pandemic mark the onset of a similar turning point with long-lasting and dramatic consequences for our world today? Unlike certain past epidemics, COVID-19 doesn’t pose a new existential threat. It will not result in unforeseen mass famines or major military defeats and regime changes. Whole populations will neither be exterminated nor displaced as a result of the pandemic. However, this does not equate to a reassuring analysis. In reality, the pandemic is dramatically exacerbating pre-existing dangers that we’ve failed to confront adequately for too long. It will also accelerate disturbing trends that have been building up over a prolonged period of time. To begin elaborating a meaningful response, we need a conceptual framework (or a simple mental map) to help us reflect on what’s coming and to guide us in making sense of it. Insights offered by history can be particularly helpful. This is why we so often search for a reassuring “mental anchor” that can serve as a benchmark when we are forced to ask ourselves tough questions about what will change and to what extent. In doing so, we look for precedents, with questions such as: Is the pandemic like the Spanish flu of 1918 (estimated to have killed more than 50 million people worldwide in three successive waves)? Could it look like the Great Depression that started in 1929? Is there any resemblance with the psychological shock inflicted by 9/11? Are there similarities with what happened with SARS in 2003 and H1N1 in 2009 (albeit on a different scale)? Could it be like the great financial crisis of 2008, but much bigger? The correct, albeit unwelcome, answer to all of these is: no! None fits the reach and pattern of the human suffering and economic destruction caused by the current pandemic. The economic fallout in particular bears no resemblance to any crisis in modern history. As pointed out by many heads of state and government in the midst of the pandemic, we are at war, but with an enemy that is invisible, and of course metaphorically: “If what we are going through can indeed be called a war, it is certainly not a typical one. After all, today’s enemy is shared by all of humankind”. [3] That said, World War II could even so be one of the most relevant mental anchors in the effort to assess what’s coming next. World War II was the quintessential transformational war, triggering not only fundamental changes to the global order and the global economy, but also entailing radical shifts in social attitudes and beliefs that eventually paved the way for radically new policies and social contract provisions (like women joining the workforce before becoming voters). There are obviously fundamental dissimilarities between a pandemic and a war (that we will consider in some detail in the following pages), but the magnitude of their transformative power is comparable. Both have the potential to be a transformative crisis of previously unimaginable proportions. However, we must beware of superficial analogies. Even in the worst-case horrendous scenario, COVID-19 will kill far fewer people than the Great Plagues, including the Black Deaths, or World War II did. Furthermore, today’s economy bears no resemblance to those of past centuries that relied on manual labour and farmland or heavy industry. In today’s highly interconnected and interdependent world, however, the impact of the pandemic will go well beyond the (already staggering) statistics relating “simply” to death, unemployment and bankruptcies. COVID-19: The Great Reset is written and published in the midst of a crisis whose consequences will unfold over many years to come. Little wonder that we all feel somewhat bewildered – a sentiment so very understandable when an extreme shock strikes, bringing with it the disquieting certainty that its outcomes will be both unexpected and unusual. This strangeness is well captured by Albert Camus in his 1947 novel The Plague: “Yet all these changes were, in one sense, so fantastic and had been made so precipitately that it wasn’t easy to regard them as likely to have any permanence.” [4] Now that the unthinkable is upon us, what will happen next, in the immediate aftermath of the pandemic and then in the foreseeable future? It is of course much too early to tell with any reasonable accuracy what COVID-19 will entail in terms of “momentous” changes, but the objective of this book is to offer some coherent and conceptually sound guidelines about what might lie ahead, and to do so in the most comprehensive manner possible. Our aim is to help our readers grasp the multifaceted dimension of the changes that are coming. At the very least, as we will argue, the pandemic will accelerate systemic changes that were already apparent prior to the crisis: the partial retreat from globalization, the growing decoupling between the US and China, the acceleration of automation, concerns about heightened surveillance, the growing appeal of well-being policies, rising nationalism and the subsequent fear of immigration, the growing power of tech, the necessity for firms to have an even stronger online presence, among many others. But it could go beyond a mere acceleration by altering things that previously seemed unchangeable. It might thus provoke changes that would have seemed inconceivable before the pandemic struck, such as new forms of monetary policy like helicopter money (already a given), the reconsideration/recalibration of some of our social priorities and an augmented search for the common good as a policy objective, the notion of fairness acquiring political potency, radical welfare and taxation measures, and drastic geopolitical realignments. The broader point is this: the possibilities for change and the resulting new order are now unlimited and only bound by our imagination, for better or for worse. Societies could be poised to become either more egalitarian or more authoritarian, or geared towards more solidarity or more individualism, favouring the interests of the few or the many; economies, when they recover, could take the path of more inclusivity and be more attuned to the needs of our global commons, or they could return to functioning as they did before. You get the point: we should take advantage of this unprecedented opportunity to reimagine our world, in a bid to make it a better and more resilient one as it emerges on the other side of this crisis. We are conscious that attempting to cover the scope and breadth of all the issues addressed in this book is an enormous task that may not even be possible. The subject and all the uncertainties attached to it are gargantuan and could have filled the pages of a publication five times the size of this one. But our objective was to write a relatively concise and simple book to help the reader understand what’s coming in a multitude of domains. To interrupt the flow of the text as little as possible, the reference information appears at the end of the book and direct attributions have been minimized. Published in the midst of the crisis and when further waves of infection are expected, it will continuously evolve to consider the changing nature of the subject matter. Future editions will be updated in view of new findings, the latest research, revised policy measures and ongoing feedback from readers. This volume is a hybrid between a light academic book and an essay. It includes theory and practical examples but is chiefly explanatory, containing many conjectures and ideas about what the post-pandemic world might, and perhaps should, look like. It offers neither simple generalizations nor recommendations for a world moving to a new normal, but we trust it will be useful. This book is structured around three main chapters, offering a panoramic overview of the future landscape. The first assesses what the impact of the pandemic will be on five key macro categories: the economic, societal, geopolitical, environmental and technological factors. The second considers the effects in micro terms, on specific industries and companies. The third hypothesizes about the nature of the possible consequences at the individual level. 1. MACRO RESET The first leg of our journey progresses across five macro categories that offer a comprehensive analytical framework to understand what’s going on in today’s world and how this might evolve. For ease of reading, we travel thematically through each separately. In reality, they are interdependent, which is where we begin: our brains make us think in linear terms, but the world that surrounds us is non-linear, that is to say: complex, adaptive, fast-paced and ambiguous. 1.1. Conceptual framework – Three defining characteristics of today’s world The macro reset will occur in the context of the three prevailing secular forces that shape our world today: interdependence, velocity and complexity. This trio exerts its force, to a lesser or greater degree, on us all, whoever or wherever we may be. 1.1.1. Interdependence If just one word had to distil the essence of the 21st century, it would have to be “interdependence”. A by-product of globalization and technological progress, it can essentially be defined as the dynamic of reciprocal dependence among the elements that compose a system. The fact that globalization and technological progress have advanced so much over the past few decades has prompted some pundits to declare that the world is now “hyperconnected” – a variant of interdependence on steroids! What does this interdependence mean in practice? Simply that the world is “concatenated”: linked together. In the early 2010s, Kishore Mahbubani, an academic and former diplomat from Singapore, captured this reality with a boat metaphor: “The 7 billion people who inhabit planet earth no longer live in more than one hundred separate boats [countries]. Instead, they all live in 193 separate cabins on the same boat.” In his own words, this is one of the greatest transformations ever. In 2020, he pursued this metaphor further in the context of the pandemic by writing: “If we 7.5 billion people are now stuck together on a virus-infected cruise ship, does it make sense to clean and scrub only our personal cabins while ignoring the corridors and air wells outside, through which the virus travels? The answer is clearly: no. Yet, this is what we have been doing. … Since we are now in the same boat, humanity has to take care of the global boat as a whole”. [5] An interdependent world is a world of deep systemic connectivity, in which all risks affect each other through a web of complex interactions. In such conditions, the assertion that an economic risk will be confined to the economic sphere or that an environmental risk won’t have repercussions on risks of a different nature (economic, geopolitical and so on) is no longer tenable. We can all think of economic risks turning into political ones (like a sharp rise in unemployment leading to pockets of social unrest), or of technological risks mutating into societal ones (such as the issue of tracing the pandemic on mobile phones provoking a societal backlash). When considered in isolation, individual risks – whether economic, geopolitical, societal or environmental in character – give the false impression that they can be contained or mitigated; in real life, systemic connectivity shows this to be an artificial construct. In an interdependent world, risks amplify each other and, in so doing, have cascading effects. That is why isolation or containment cannot rhyme with interdependence and interconnectedness. The chart below, extracted from the World Economic ForumGlobal Risks Report 2020, [6] makes this plain. It illustrates the interconnected nature of the risks we collectively face; each individual risk always conflates with those from its own macro category but also with the individual risks from the other macro categories (economic risks appear in blue, geopolitical in orange, societal in red, environmental in green and technological in purple). In this manner, each individual risk harbours the potential to create ricochet effects by provoking other risks. As the chart makes clear, an “infectious diseases” risk is bound to have a direct effect on “global governance failure”, “social instability”, “unemployment”, “fiscal crises” and “involuntary migration” (to name just a few). Each of these in turn will influence other individual risks, meaning that the individual risk from which the chain of effects started (in this particular case “infectious diseases”) ends up amplifying many other risks not only in its own macro category (societal risks), but also in the other four macro categories. This displays the phenomenon of contagion by systemic connectivity. In the following sub-chapters, we explore what the pandemic risk might entail from an economic, societal, geopolitical, environmental and technological perspective. Figure 1 Source: World Economic Forum, The Global Risks Report 2020, Figure IV: The Global Risks Interconnections Map 2020, World Economic Forum Global Risks Perception Survey 2019-2020 Interdependence has an important conceptual effect: it invalidates “silo thinking”. Since conflation and systemic connectivity are what ultimately matter, addressing a problem or assessing an issue or a risk in isolation from the others is senseless and futile. In the past, this “silo thinking” partly explains why so many economists failed to predict the credit crisis (in 2008) and why so few political scientists saw the Arab Spring coming (in 2011). Today, the problem is the same with the pandemic. Epidemiologists, public-health specialists, economists, social scientists and all the other scientists and specialists who are in the business of helping decision-makers understand what lies ahead find it difficult (and sometimes impossible) to cross the boundaries of their own discipline. That is why addressing complex trade-offs, such as containing the progression of the pandemic versus reopening the economy, is so fiendishly difficult. Understandably, most experts end up being segregated into increasingly narrow fields. Therefore, they lack the enlarged view necessary to connect the many different dots that provide the more complete picture the decision-makers desperately need. 1.1.2. Velocity The above firmly points the finger at technological progress and globalization as the primary “culprits” responsible for greater interdependence. In addition, they have created such a culture of immediacy that it’s not an exaggeration to claim that, in today’s world, everything moves much faster than before. If just one thing were to be singled out to explain this astonishing increase in velocity, it would undoubtedly be the internet. More than half (52%) of the world’s population is now online, compared to less than 8% 20 years ago; in 2019, more than 1.5 billion smartphones – a symbol and vector of velocity that allows us to be reached anywhere and at any time – were sold around the world. The internet of things (IoT) now connects 22 billion devices in real time, ranging from cars to hospital beds, electric grids and water station pumps, to kitchen ovens and agricultural irrigation systems. This number is expected to reach 50 billion or more in 2030. Other explanations for the rise in velocity point to the “scarcity” element: as societies get richer, time becomes more valuable and is therefore perceived as evermore scarce. This may explain studies showing that people in wealthy cities always walk faster than in poor cities – they have no time to lose! No matter what the causal explanation is, the endgame of all this is clear: as consumers and producers, spouses and parents, leaders and followers, we are all being subjected to constant, albeit discontinuous, rapid change. We can see velocity everywhere; whether it’s a crisis, social discontent, technological developments and adoption, geopolitical upheaval, the financial markets and, of course, the manifestation of infectious diseases – everything now runs on fast-forward. As a result, we operate in a real-time society, with the nagging feeling that the pace of life is ever increasing. This new culture of immediacy, obsessed with speed, is apparent in all aspects of our lives, from “just-in-time” supply chains to “high-frequency” trading, from speed dating to fast food. It is so pervasive that some pundits call this new phenomenon the “dictatorship of urgency”. It can indeed take extreme forms. Research performed by scientists at Microsoft shows, for example, that being slower by no more than 250 milliseconds (a quarter of a second) is enough for a website to lose hits to its “faster” competitors! The all-embracing result is that the shelf life of a policy, a product or an idea, and the life cycle of a decision-maker or a project, are contracting sharply and often unpredictably. Nothing illustrated this more vividly than the breakneck speed with which COVID-19 progressed in March 2020. In less than a month, from the maelstrom provoked by the staggering speed at which the pandemic engulfed most of the world, a whole new era seemed to emerge. The beginning of the outbreak was thought to have taken place in China sometime earlier, but the exponential global progression of the pandemic took many decision-makers and a majority of the public by surprise because we generally find it cognitively hard to grasp the significance of exponential growth. Consider the following in terms of “days for doubling”: if a pandemic grows at 30% a day (as COVID-19 did around mid-March for some of the worst affected countries), registered cases (or deaths) will double in a little more than two days. If it grows at 20%, it will take between four and five days; and if it grows at 10%, it will take just more than a week. Expressed differently: at the global level, it took COVID-19 three months to reach 100,000 cases, 12 days to double to 200,000 cases, four days to reach 300,000 cases, and then 400,000 and 500,000 cases were reached in two days each. These numbers make our heads spin – extreme velocity in action! Exponential growth is so baffling to our cognitive functions that we often deal with it by developing exponential “myopia”, [7] thinking of it as nothing more than “very fast”. In a famous experiment conducted in 1975, two psychologists found that when we have to predict an exponential process, we often underestimate it by factor of 10. [8] Understanding this growth dynamic and the power of exponentials clarifies why velocity is such an issue and why the speed of intervention to curb the rate of growth is so crucial. Ernest Hemingway understood this. In his novel The Sun Also Rises, two characters have the following conversation: “How did you go bankrupt?" Bill asked. “Two ways,” Mike said. “Gradually, then suddenly.” The same tends to happen for big systemic shifts and disruption in general: things tend to change gradually at first and then all at once. Expect the same for the macro reset. Not only does velocity take extreme forms, but it can also engender perverse effects. “Impatience”, for example, is one, the effects of which can be seen similarly in the behaviour of participants in the financial markets (with new research suggesting that momentum trading, based on velocity, leads stock prices to deviate persistently from their fundamental value or “correct” price) and in that of voters in an election. The latter will have a critical relevance in the post-pandemic era. Governments, by necessity, take a while to make decisions and implement them: they are obliged to consider many different constituency groups and competing interests, balance domestic concerns with external considerations and secure legislative approval, before putting into motion the bureaucratic machinery to action all these decisions. By contrast, voters expect almost immediate policy results and improvements, which, when they don’t arrive fast enough, lead to almost instantaneous disappointment. This problem of asynchronicity between two different groups (policy-makers and the public) whose time horizon differs so markedly will be acute and very difficult to manage in the context of the pandemic. The velocity of the shock and (the depth) of the pain it has inflicted will not and cannot be matched with equal velocity on the policy side. Velocity also led many observers to establish a false equivalence by comparing seasonal flu with COVID-19. This comparison, made again and again in the early months of the pandemic, was misleading and conceptually erroneous. Let’s take the example of the US to hammer out the point and better grasp the role played by velocity in all of this. According to the Centers for Disease Control (CDC), between 39 and 56 million Americans contracted the flu during the 2019-2020 winter season, with between 24,000 and 62,000 deaths. [9] By contrast, and according to Johns Hopkins University, on 24 June 2020, more than 2.3 million were diagnosed with COVID-19 and almost 121,000 people had died. [10] But the comparison stops there; it is meaningless for two reasons: 1) the flu numbers correspond to the estimated total flu burden while the COVID-19 figures are confirmed cases; and 2) the seasonal flu cascades in “gentle” waves over a period of (up to six) months in an even pattern while the COVID-19 virus spreads like a tsunami in a hotspot pattern (in a handful of cities and regions where it concentrates) and, in doing so, can overwhelm and jam healthcare capacities, monopolizing hospitals to the detriment of non-COVID-19 patients. The second reason – the velocity with which the COVID-19 pandemic surges and the suddenness with which clusters emerge – makes all the difference and renders the comparison with the flu irrelevant. Velocity lies at the root of the first and second reasons: in a vast majority of countries, the speed with which the epidemic progressed made it impossible to have sufficient testing capabilities, and it then overwhelmed many national health systems equipped to deal with a predictable, recurrent and rather slow seasonal flu but not with a “superfast” pandemic. Another important and far-reaching consequence of velocity is that decision-makers have more information and more analysis than ever before, but less time to decide. For politicians and business leaders, the need to gain a strategic perspective collides ever-more frequently with the day-to-day pressures of immediate decisions, particularly obvious in the context of the pandemic, and reinforced by complexity, as we see in the next section. 1.1.3. Complexity In its simplest possible form, complexity can be defined as what we don’t understand or find difficult to understand. As for a complex system, the psychologist Herbert Simon defined it as “one made up of a large number of parts that interact in a nonsimple way”. [11] Complex systems are often characterized by an absence of visible causal links between their elements, which makes them virtually impossible to predict. Deep in ourselves, we sense that the more complex a system is, the greater the likelihood that something might go wrong and that an accident or an aberration might occur and propagate. Complexity can roughly be measured by three factors: “1) the amount of information content or the number of components in a system; 2) the interconnectedness – defined as the dynamic of reciprocal responsiveness – between these pieces of information or components; and 3) the effect of non-linearity (non-linear elements are often called ‘tipping points’). Non-linearity is a key feature of complexity because it means that a change in just one component of a system can lead to a surprising and disproportionate effect elsewhere.” [12] It is for this reason that pandemic models so often yield wide ranges of outcomes: a difference of assumption regarding just one component of the model can dramatically affect the end result. When one hears about “black swans”, “known unknowns” or “butterfly effects”, non-linearity is at work; it thus comes as no surprise that we often associate world complexity with “surprises”, “turbulence” and “uncertainty”. For example, in 2008, how many “experts” anticipated that mortgage-backed securities originating in the United States would cripple banks around the world and ultimately bring the global financial system to the verge of collapse? And in the early weeks of 2020, how many decision-makers foresaw the extent to which a possible pandemic would wreak havoc on some of the most sophisticated health systems in the world and would inflict such major damage to the global economy? A pandemic is a complex adaptive system comprising many different components or pieces of information (as diverse as biology or psychology), whose behaviour is influenced by such variables as the role of companies, economic policies, government intervention, healthcare politics or national governance. For this reason, it can and should be viewed as a “living network” that adapts to changing conditions – not something set in stone, but a system of interactions that is both complex and adaptive. It is complex because it represents a “cat’s cradle” of interdependence and interconnections from which it stems, and adaptive in the sense that its “behaviour” is driven by interactions between nodes (the organizations, the people – us!) that can become confused and “unruly” in times of stress (Will we adjust to the norms of confinement? Will a majority of us – or not – abide by the rules? etc.). The management (the containment, in this particular case) of a complex adaptive system requires continuous real-time but ever-changing collaboration between a vast array of disciplines, and between different fields within these disciplines. Just to provide a broad and oversimplified example, the containment of the coronavirus pandemic will necessitate a global surveillance network capable of identifying new outbreaks as soon as they arise, laboratories in multiple locations around the world that can rapidly analyse new viral strains and develop effective treatments, large IT infrastructures so that communities can prepare and react effectively, appropriate and coordinated policy mechanisms to efficiently implement the decisions once they are made, and so on. The important point is this: each separate activity by itself is necessary to address the pandemic but is insufficient if not considered in conjunction with the others. It follows that this complex adaptive system is greater than the sum of its parts. Its effectiveness depends on how well it works as a whole, and it is only as strong as its weakest link. Many pundits have mischaracterized the COVID-19 pandemic as a black-swan event simply because it exhibits all the characteristics of a complex adaptive system. But in reality it is a white-swan event, something explicitly presented as such by Nassim Taleb in The Black Swan published in 2007: something that would eventually take place with a great deal of certainty. [13] Indeed! For years, international organizations like the World Health Organization (WHO), institutions like the World Economic Forum and the Coalition for Epidemic Preparedness Innovations (CEPI – launched at the Annual Meeting 2017 in Davos), and individuals like Bill Gates have been warning us about the next pandemic risk, even specifying that it: 1) would emerge in a highly populated place where economic development forces people and wildlife together; 2) would spread quickly and silently by exploiting networks of human travel and trade; and 3) would reach multiple countries by thwarting containment. As we will see in the following chapters, properly characterizing the pandemic and understanding its characteristics are vital because they were what underpinned the differences in terms of preparedness. Many Asian countries reacted quickly because they were prepared logistically and organizationally (due to SARS) and thus were able to lessen the impact of the pandemic. By contrast, many Western countries were unprepared and were ravaged by the pandemic – it is no coincidence that they are the ones in which the false notion of a blackswan event circulated the most. However, we can confidently assert that the pandemic (a high probability, high consequences white-swan event) will provoke many black-swan events through second-, third-, fourth- and more-order effects. It is hard, if not impossible, to foresee what might happen at the end of the chain when multiple-order effects and their ensuing cascades of consequences have occurred after unemployment spikes, companies go bust and some countries are teetering on the verge of collapse. None of these are unpredictable per se, but it is their propensity to create perfect storms when they conflate with other risks that will take us by surprise. To sum up, the pandemic is not a black-swan event, but some of its consequences will be. The fundamental point here is this: complexity creates limits to our knowledge and understanding of things; it might thus be that today’s increasing complexity literally overwhelms the capabilities of politicians in particular – and decision-makers in general – to make well informed decisions. A theoretical physicist turned head of state (President Armen Sarkissian of Armenia) made this point when he coined the expression “quantum politics”, outlining how the classical world of post-Newtonian physics – linear, predictable and to some extent even deterministic – had given way to the quantum world: highly interconnected and uncertain, incredibly complex and also changing depending on the position of the observer. This expression recalls quantum physics, which explains how everything works and is “the best description we have of the nature of the particles that make up matter and the forces with which they interact.” [14] The COVID-19 pandemic has laid bare this quantum world. 1.2. Economic reset 1.2.1. The economics of COVID-19 Our contemporary economy differs radically from that of previous centuries. Compared to the past, it is infinitely more interconnected, intricate and complex. It is characterized by a world population that has grown exponentially, by airplanes that connect any point anywhere to another somewhere else in just a few hours, resulting in more than a billion of us crossing a border each year, by humans encroaching on nature and the habitats of wildlife, by ubiquitous, sprawling megacities that are home to millions of people living cheek by jowl (often without adequate sanitation and medical care). Measured against the landscape of just a few decades ago, let alone centuries ago, today’s economy is simply unrecognizable. Notwithstanding, some of the economic lessons to be gleaned from historical pandemics are still valid today to help grasp what lies ahead. The global economic catastrophe that we are now confronting is the deepest recorded since 1945; in terms of its sheer speed, it is unparalleled in history. Although it does not rival the calamities and the absolute economic desperation that societies endured in the past, there are some telling characteristics that are hauntingly similar. When in 1665, over the space of 18 months, the last bubonic plague had eradicated a quarter of London’s population, Daniel Defoe wrote inA Journal of the Plague Year [15] (published in 1722): “All trades being stopped, employment ceased: the labour, and by that the bread, of the poor were cut off; and at first indeed the cries of the poor were most lamentable to hear … thousands of them having stayed in London till nothing but desperation sent them away, death overtook them on the road, and they served for no better than the messengers of death.” Defoe’s book is full of anecdotes that resonate with today’s situation, telling us how the rich were escaping to the country, “taking death with them”, and observing how the poor were much more exposed to the outbreak, or describing how “quacks and mountebanks” sold false cures. [16] What the history of previous epidemics shows again and again is how pandemics exploit trade routes and the clash that exists between the interests of public health and those of economics (something that constitutes an economic “aberration” as we will see in just a few pages). As the historian Simon Schama describes: In the midst of calamity, economics was always at loggerheads with the interests of public health. Even though, until there was an understanding of germ-borne diseases, the plague was mostly attributed to ‘foul air’ and noxious vapours said to arise from stagnant or polluted marshes, there was nonetheless a sense that the very commercial arteries that had generated prosperity were now transformed into vectors of poison. But when quarantines were proposed or imposed (…), those who stood to lose most, merchants and in some places artisans and workers, from the stoppage of markets, fairs and trade, put up stiff resistance. Must the economy die so that it could be resurrected in robust good health? Yes, said the guardians of public health, who became part of urban life in Europe from the 15th century onwards. [17] History shows that epidemics have been the great resetter of countries’ economy and social fabric. Why should it be different with COVID-19? A seminal paper on the long-term economic consequences of major pandemics throughout history shows that significant macroeconomic after-effects can persist for as long as 40 years, substantially depressing real rates of return. [18] This is in contrast to wars that have the opposite effect: they destroy capital while pandemics do not – wars trigger higher real interest rates, implying greater economic activity, while pandemics trigger lower real rates, implying sluggish economic activity. In addition, consumers tend to react to the shock by increasing their savings, either because of new precautionary concerns, or simply to replace the wealth lost during the epidemic. On the labour side, there will be gains at the expense of capital since real wages tend to rise after pandemics. As far back as the Black Death that ravaged Europe from 1347 to 1351 (and that suppressed 40% of Europe’s population in just a few years), workers discovered for the first time in their life that the power to change things was in their hands. Barely a year after the epidemic had subsided, textile workers in Saint-Omer (a small city in northern France) demanded and received successive wage rises. Two years later, many workers’ guilds negotiated shorter hours and higher pay, sometimes as much as a third more than their pre-plague level. Similar but less extreme examples of other pandemics point to the same conclusion: labour gains in power to the detriment of capital. Nowadays, this phenomenon may be exacerbated by the ageing of much of the population around the world (Africa and India are notable exceptions), but such a scenario today risks being radically altered by the rise of automation, an issue to which we will return in section 1.6. Unlike previous pandemics, it is far from certain that the COVID-19 crisis will tip the balance in favour of labour and against capital. For political and social reasons, it could, but technology changes the mix. 1.2.1.1. Uncertainty The high degree of ongoing uncertainty surrounding COVID-19 makes it incredibly difficult to precisely assess the risk it poses. As with all new risks that are agents of fear, this creates a lot of social anxiety that impacts economic behaviour. An overwhelming consensus has emerged within the global scientific community that Jin Qi (one of China’s leading scientists) had it right when he said in April 2020: “This is very likely to be an epidemic that co-exists with humans for a long time, becomes seasonal and is sustained within human bodies.” [19] Ever since the pandemic started, we have been bombarded daily with a relentless stream of data but, in June 2020, roughly half a year after the beginning of the outbreak, our knowledge is still very patchy and as a result we still don’t really know just how dangerous COVID-19 is. Despite the deluge of scientific papers published on the coronavirus, its infection fatality rate (i.e. the number of COVID-19 cases, measured or not, that result in death) remains a matter of debate (around 0.4%-0.5% and possibly up to 1%). The ratio of undetected to confirmed cases, the rate of transmissions from asymptomatic individuals, the seasonality effect, the length of the incubation period, the national infection rates – progress in terms of understanding each of these is being made, but they and many other elements remain “known unknowns” to a large extent. For policy-makers and public officials, this prevailing level of uncertainty makes it very difficult to devise the right public-health strategy and the concomitant economic strategy. This should not come as a surprise. Anne Rimoin, a professor of epidemiology at UCLA, confesses: “This is a novel virus, new to humanity, and nobody knows what will happen.” [20] Such circumstances require a good dose of humility because, in the words of Peter Piot (one of the world’s leading virologists): “The more we learn about the coronavirus, the more questions arise.” [21] COVID-19 is a master of disguise that manifests itself with protean symptoms that are confounding the medical community. It is first and foremost a respiratory disease but, for a small but sizeable number of patients, symptoms range from cardiac inflammation and digestive problems to kidney infection, blood clots and meningitis. In addition, many people who recover are left with chronic kidney and heart problems, as well as lasting neurological effects. In the face of uncertainty, it makes sense to resort to scenarios to get a better sense of what lies ahead. With the pandemic, it is well understood that a wide range of potential outcomes is possible, subject to unforeseen events and random occurrences, but three plausible scenarios stand out. Each may help to delineate the contours of what the next two years could be like. These three plausible scenarios [22] are all based on the core assumption that the pandemic could go on affecting us until 2022; thus they can help us to reflect upon what lies ahead. In the first scenario, the initial wave that began in March 2020 is followed by a series of smaller waves that occur through mid-2020 and then over a one- to two-year period, gradually diminishing in 2021, like “peaks and valleys”. The occurrence and amplitude of these peaks and valleys vary geographically and depend on the specific mitigation measures that are implemented. In the second scenario, the first wave is followed by a larger wave that takes place in the third or fourth quarter of 2020, and one or several smaller subsequent waves in 2021 (like during the 1918-1919 Spanish flu pandemic). This scenario requires the reimplementation of mitigation measures around the fourth quarter of 2020 to contain the spread of infection and to prevent healthcare systems from being overwhelmed. In the third scenario, not seen with past influenza pandemics but possible for COVID-19, a “slow burn” of ongoing transmission and case occurrence follow the first wave of 2020, but without a clear wave pattern, just with smaller ups and downs. Like for the other scenarios, this pattern varies geographically and is to a certain extent determined by the nature of the earlier mitigation measures put into place in each particular country or region. Cases of infection and deaths continue to occur, but do not require the reinstitution of mitigation measures. A large number of scientists seem to agree with the framework offered by these three scenarios. Whichever of the three the pandemic follows, they all mean, as the authors explicitly state, that policymakers must be prepared to deal with “at least another 18 to 24 months of significant COVID-19 activity, with hotspots popping up periodically in diverse geographic areas”. As we will argue next, a full-fledged economic recovery cannot take place until the virus is defeated or behind us.